Alan Bao

alanb@berkeley.edu ▪ (858)733-9696 ▪ Berkeley, CA ▪ linkedin.com/in/alan-bao ▪ alanbao.org

EDUCATION

University of California, Berkeley **May 2026**

Bachelor of Science, Electrical Engineering and Computer Sciences & Engineering Mathematics and Statistics

- **Relevant Coursework:** Data Structures, Algorithms, Computer Architecture & Security, Databases, Machine Learning, Computer Vision, Linear Modelling, Probability & Random Processes, Optimization, Linear Algebra, Numerical Analysis

WORK EXPERIENCE

Capital One **June 2025 – August 2025**

Software Engineer Intern *Plano, TX*

- Deployed a user-friendly graph-based auto-loan decisioning service, expediting the application process by 23%
- Enabled reactive graph editing in the UI by building a secure REST API endpoint that processes rule files, logs graph and versioning metadata and persists them to S3 and Postgres
- Reduced graph build time from 90 to 30 seconds and rebuild time to 5 seconds by designing an optimized AWS Postgres (RDS) schema for necessary graph data and implementing lightweight incremental rebuilds
- Decreased graph data retrieval time from 8 to 3 seconds by integrating an in-memory cache and graph-authoring backend service with client-side validations and end-to-end tests to prevent redundant calls
- Shrank Javascript bundle size by 37% by migrating the UI from Angular to Lit

Hologic **May 2024 – August 2024**

Software Engineer Intern *San Diego, CA*

- Boosted analytics throughput 70% by architecting the News Aggregation Program (NAP), an automated text mining and classification pipeline that processes 2000+ medical articles per week
- Improved UX and halved article search time to 4 seconds by redesigning NAP's UI and optimizing database queries
- Cut manual research time and identified key research priorities by analyzing 5 years of industry data with topic modeling
- Designed a low latency, department-wide email digest system, automatically sending 100+ targeted summaries biweekly

RR:ID Journal **February 2023 – December 2024**

Data Science Research Intern *Berkeley, CA*

- Increased preprint review efficiency by 41% by developing an NLP classifier that auto-assigns submissions to reviewers by research focus
- Delivered weekly trend briefs to 20 reviewers by mining and analysis 500+ papers for trending research topics
- Streamlined the review processes by manually matching 40-80 reviewers to preprints per week

TECHNICAL SKILLS

- **Programming Languages:** Python, Java, Golang, C, C++, Javascript, SQL, HTML, CSS, x86, Matlab
- **Libraries & Frameworks:** React, REST API, Node, Spring Boot, Django, Pytest, JUnit, Flask, Angular, Lit
- **Platform & Tools:** Git, Linux, AWS, Docker, Postgres, Agile, CI/CD

EXTRACURRICULAR EXPERIENCE

UC Berkeley Electrical Engineering and Computer Sciences **January 2023 – Present**

Tutor

- Lectured 40-student classes on introductory computer science theory such as data structures, algorithms and graphs
- Increased student success and productivity on class projects by hosting conceptual whiteboarding sessions and debugging code during lab sections and office hours
- Held one-on-one private tutoring sessions for advanced computer science topics including efficient algorithms, machine learning and computer architecture

PROJECTS

UC Berkeley Assist Tool | *Python, React, Javascript, Selenium, HTML, CSS*

- Collected over 6000 course articulations in under 14 minutes by automating data collection through web scraping
- Implemented a React web application that helps students instantly research transferable courses from all 116 California Community Colleges to UC Berkeley

Image Editor | *Python, React, OpenCV, Scikit-Learn, Scipy, HTML, CSS*

- Built a Python image editing tool that uses computer vision techniques to sharpen, align, crop, blend and morph images
- Derived and tailored image processing algorithms and Gaussian and Laplacian pyramids for more visually accurate results
- Currently developing a frontend in React to allow easy usage of tool without needing to directly access the source code